CLAIMS

1. Piezoactive actuator with amplified movement comprising a first sub-assembly formed by a mechanical movement amplifier arranged as a shell with at least two branches made of deformable flexible material, having a large axis and a small axis extending perpendicularly to one another, an interface with a load and an interface with a base, respectively placed at the peaks of the small axis of the shell and designed for actuating the load with respect to the base, defining an actuating axis, and a second sub-assembly equipped with linear piezoactive elements mounted inside the shell in the direction of the large axis and electrically excited by a power supply circuit to produce a longitudinal deformation of the large axis and to induce a deformation of the small axis designed to generate at the interface with the load a movement the component whereof along the small axis is amplified, actuator comprising, at least substantially along the actuating axis, at least one zone made of elastomer material designed to dampen deformations of the actuator and to increase the capacity of the actuator to resist external stresses, the actuator comprising at least one free space, adjacent to the elastomer material zone, in a direction orthogonal to the actuating axis.

2. Piezoactive actuator according to claim 1, wherein the elastomer material zone is arranged between the piezoactive elements and the branches of the shell in the center of the shell, along the small axis.

3. Piezoactive actuator according to claim 2, wherein the elastomer material zone completely fills the space between the piezoactive elements and the branches of the shell, the free space being arranged in the direction perpendicular to the plane defined by the small and large axes.

4. Piezoactive actuator according to claim 2, wherein the elastomer material zone presses in the center of the shell on a clearance take-up mechanism.

5. Piezoactive actuator according to claim 1, wherein two elastomer material zones are arranged substantially parallel to the small axis, respectively on each side of the second sub-assembly, so as to join internal faces of the branches.

6. Piezoactive actuator according to claim 1, wherein two elastomer material zones are arranged substantially parallel to the actuating axis, respectively on each side of the first and second sub-assemblies, so as to join the load and base.

7. Piezoactive actuator according to claim 1, wherein at least two elastomer material zones are arranged substantially in the plane of the large and small axes, respectively between the shell and load and between the shell and base.

8. Piezoactive actuator according to claim 1, wherein the elastomer material zone is arranged outside the shell in contact with the branches of the shell and another body.

9. Piezoactive actuator according to claim 1, wherein the actuator comprises an additional preloading device arranged in parallel to the large axis of the actuator so as to increase the capacity of the actuator to resist external stresses.

10. Piezoactive actuator according to claim 9, wherein the additional preloading device comprises two springs.

11. Piezoactive actuator according to claim 1, comprising a mechanical device acting in the center of the actuator allowing a movement of the center of the actuator in a direction perpendicular to the actuator and preventing a movement in a direction tangential to the actuator so as to allow two degrees of freedom.

12. Piezoactive actuator according to claim 9, wherein the additional preloading device is also connected to the center of the actuator.

13. Piezoactive actuator according to claim 11, wherein the mechanical device comprises two flexible blades arranged parallel to the large axis of the actuator and linking the base of the actuator on the one hand and the center of the actuator on the other hand.

14. Piezoactive actuator according to claim 1, wherein three actuators are arranged so as to form an isostatic mechanism with six degrees of freedom.

15. Piezoactive actuator according to claim 1, wherein four actuators are arranged so as to form a mechanism with two degrees of freedom of rotation and one degree of freedom of translation.

16. Piezoactive actuator according to claim 15, wherein flexion pivots are stuck in the actuators so as to prevent static indeterminancy of the actuator.

17. Piezoactive actuator according to claim 15, wherein the actuators are connected to a mobile platform by means of spring-loaded screws so as to prevent static indeterminancy of the actuator.

18. Piezoactive actuator according to claim 1, wherein four actuators are arranged so as to form a mechanism with two degrees of freedom of translation.

19. Piezoactive actuator according to claim 1, wherein four actuators are arranged so as to form a mechanism with two degrees of freedom of translation and one degree of freedom of rotation.

20. Piezoactive actuator according to claim 1, arranged so as to dampen vibrations of a structure to which it is fixed.